

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

Petro Mohyla Black Sea National University

Medical Institute

Department of Surgical Disciplines

"I APPROVE IT"

First Vice-Rector

Chenko N. M.



2019

WORKING PROGRAM OF THE ACADEMIC DISCIPLINE

TRAUMATOLOGY, ORTHOPEDICS AND REHABILITATION

Branch of knowledge 22 "Healthcare"

Specialty 222 "Medicine"

Developer

Head of the Developer Department

Guarantor of the educational

program

Director of the Institute

Head of NMV

Zaborovskiy V. I.

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Klimenko M. O.

Grishchenko G. V.

Shkirehak S. I.

Mykolaiv - 2019

Description of the academic discipline

Naming of the indicator	Characteristics of the discipline		
Name of the discipline	Traumatology, orthopedics and rehabilitation		
Area of expertise	22 "healthcare"		
Specialization	222 "Medicine"		
Specialization (if any)			
Educational program	Medicine		
Higher education level	Master's Degree		
Discipline status	Custom version		
Course of study	5th		
Academic year	2020-2021		
Semester numbers:	Full-time form	Correspondence form	
	Nine		
Total number of ECTS credits/hours	3 credits / 90 hours		
Course structure:	Full-time form	Correspondence form	
	<ul style="list-style-type: none"> • lectures • practical exercises • hours of independent work of students 	10	
		40	
	40 .		
Percentage of audience load	56%		
Language of instruction	english		
Final control form	Dif. credit – 10 semester		

2. Purpose, objectives, and planned learning outcomes

Goal the study of traumatology, orthopedics and rehabilitation is established on the basis of AKI training of a doctor in the specialty in accordance with its block and is the basis for building the content of the academic discipline:

It will provide students with the necessary knowledge on the prevention of injuries and orthopedic diseases, organization of traumatological and orthopedic care in Ukraine, methods of examination, diagnosis and treatment and rehabilitation of patients with injuries and diseases of the movement and support apparatus, restoration of working capacity and determination of the labor forecast.

Mastering knowledge and skills on the basics of rehabilitation, studying the main instructional and methodological and legislative acts on rehabilitation, concepts in the

rehabilitation of patients and disabled people, organizing and conducting medical, psychological, physical, professional, social and other types of rehabilitation.

To form a system of knowledge about general pathology, methods of physical rehabilitation, determination of physical development and functional state, improvement of physical performance.

As an academic discipline, it is an integral part of clinical medicine, so studying the main provisions of this field of science is an important moment in training a doctor of any specialty.

Learning objectives: acquisition by a student of competencies, knowledge, skills and abilities for carrying out professional activities in the specialty:

- 1) interpret the concept of "traumatology and orthopedics";
- 2) evaluate a person's motor activity and physical condition, draw up and implement programs of conditioned training, organize and conduct physical culture and health activities.
- 3) explain the pathogenetic features of the course of traumatic disease in polytrauma;
- 4) interpretation of the main clinical manifestations and laboratory indicators of violations of vital functions in the course of traumatic illness;
- 5) knowledge of methods of diagnosis and assistance in the main syndromes of the course of the consequences of traumatic injuries;
- 6) ability to identify physical rehabilitation measures
- 7) use of the basic principles of organizing emergency care for victims with polytrauma during man-made and natural disasters;
- 8) learn the principles of classification of typical injuries and orthopedic diseases, as well as the principles of injury prevention and orthopedic diseases;
- 9) in individuals, they are required to justify the choice of activities for physical culture and sports rehabilitation and adaptive sports.

Prerequisites for studying the discipline (interdisciplinary relations). Traumatology, orthopedics and rehabilitation as an academic discipline is related to the following subjects::

- a) **normal anatomy:** osteology, myology, syndesmology, joint structure.
- b) **pathological anatomy:** inflammation, degenerative-dystrophic process, specific inflammatory processes (tuberculosis, etc.).
- d) **histology:** structure of bone and cartilage tissue and physiological regeneration of bone tissue.

e) radiology and radiology: age-related features of the skeleton in the X-ray image; x-ray examination of the skeleton; X-ray semiotics of diseases and injuries of the skeleton, radionuclide methods for diagnosing diseases of the musculoskeletal system.

f) operative surgery and topographic anatomy: operational .access to large joints, topography of neurovascular formations of the extremities, amputation and isolation, surgical instruments.

g) physical rehabilitation, sports medicine: It provides an opportunity to gain practical skills and develop professional skills to provide qualified assistance in rehabilitation during the care of traumatological and orthopedic patients.

c) form the methodological foundations of clinical thinking.

Expected learning outcomes. As a result of studying the discipline, students should::

- to determine management tactics for patients with injuries and the most common orthopedic diseases of the musculoskeletal system
- demonstrate proficiency in the prevention of injuries and orthopedic diseases
- diagnose emergency conditions with injuries of the musculoskeletal system and provide emergency medical care
- explain the principles of rehabilitation treatment and rehabilitation of patients with musculoskeletal disorders
- perform differential diagnosis of traumatic injuries of the musculoskeletal system, establish a preliminary diagnosis for injuries and the most common orthopedic diseases
- learn basic concepts in rehabilitation medicine
- master the main directions of organization and management of the medical rehabilitation system
- to study the main instructional, methodological and legislative acts in the system of medical rehabilitation in Ukraine

According to the requirements of the educational and professional program, students must:

TO KNOW:

- general principles of examination of patients with injuries and diseases of the support and movement system;
- signs of disorders of the anatomy and function of the joints, spine;
- principles of diagnosis of spinal injuries, joint bones, girdles, upper and lower extremities;
- special methods of examination of traumatological and orthopedic patients and patients with spinal pathology (radiography, tomography, computed tomography);
- current understanding of the etiology and pathogenesis of osteochondrosis and osteoarthritis;

- etiology and pathogenesis of scoliotic disease, classification of scoliotic disease and clinic of various degrees of scoliosis, methods of conservative and surgical treatment of scoliosis and indications for them;
 - relative signs of fractures, dislocations, diseases of the joints and spine are also likely;
 - schemes of clinical and laboratory diagnostics and treatment of inflammatory and tumor lesions of bones and joints;
 - basic methods of conservative and operative treatment of patients with injuries and diseases of the musculoskeletal system;
 - indications of operative and conservative methods of treatment;
 - main advantages and disadvantages of conservative and operative methods of treatment;
- using conservative and operative methods of treatment and ways to prevent them;
- Possible complications in the use of conservative and operative methods of treatment and ways to prevent them.

BE ABLE TO:

- examine patients with injuries and diseases of the support and movement system and formulate a preliminary diagnosis and plan for examination and treatment.
- determine management tactics for patients with injuries and the most common orthopedic diseases of the musculoskeletal system;
- demonstrate proficiency in methods of injury prevention and orthopedic diseases;
- explain the principles of rehabilitation treatment and rehabilitation of patients with musculoskeletal disorders;
- perform differential diagnostics of traumatic injuries of the musculoskeletal system;
- establish a preliminary diagnosis for the most common injuries and orthopedic diseases;
- develop treatment and rehabilitation schemes for victims with fractures and their complications;
- diagnose traumatic shock and provide medical care at the pre-hospital and hospital stages.
- perform anesthesia of the fracture site of the long bone diaphysis;
- perform transport and medical immobilization;
- apply and remove the plaster cast, assess the condition of the limb in a plaster cast:

HAVE COMPETENCIES

- on the application of knowledge in traumatology and orthopedics to promote a healthy lifestyle, as well as to prevent domestic injuries;
- the main promising areas of development of traumatology and orthopedics; formation of practical skills in the diagnosis and treatment of patients with injuries and diseases of the support and movement system. the main promising areas of development of traumatology and orthopedics.

The developed program corresponds to ***educational and professional program (OPP)*** and focused on the formation of ***competencies***:

general (ZK) – ZK1-ZK3 OPP:

ZK1. Ability to think abstractly, analyze and synthesize, learn and master modern knowledge.

ZK2. Ability to apply knowledge in practical situations.

ZK3. Knowledge and understanding of the subject area and understanding of professional activity.

professional (FC) - FC1-6; FC11; FC16; FC18 OPP:

FC1. Patient interviewing skills.

FC2. Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results.

FC3. Ability to establish a preliminary and clinical diagnosis of the disease.

FC4. Ability to determine the necessary mode of work and rest in the treatment of diseases.

FC5. Ability to determine the nature of nutrition in the treatment of diseases.

FC6. Ability to determine the principles and nature of treatment of diseases.

FC11. Skills in performing medical manipulations.

FC16. Ability to determine the management tactics of persons subject to medical supervision.

FC18. Ability to maintain medical records.

Program-based learning outcomes (s)-PRN11, PRN13-18,PRN22, PRN25, PRN28, PRN30, PRN32, PRN33, PRN35, PRN41 OPP:

PRN11.Collect data on patient complaints, medical history, and life history (including professional medical history), in the conditions of a health care institution, its department or at the patient's home, using the results of an interview with by the patient, according to the standard patient survey scheme. Under any circumstances (in a healthcare facility, department, or home at the patient, etc.), using knowledge about the person, his organs and systems.

PRN13.In the context of a healthcare institution, its subdivisions and among the attached population: be able to identify and record the leading clinical symptom or syndrome by making an informed decision, using preliminary data from the patient's medical history, data from the patient's physical examination, knowledge about the person, his organs and systems, by adhering to the relevant ethical and legal standards. Be able to establish the most likely or syndromic diagnosis diseases by making an informed decision, for the patient and the patient's examination data, based on the leading clinical symptom or syndrome, using knowledge about the person, their organs and systems, by adhering to the relevant ethical and legal standards.

PRN14.In the context of a healthcare institution or its subdivision: appoint a laboratory and / or instrumental examination of the patient by making an informed decision, based on the most probable or syndromic diagnosis, according to standard schemes, using knowledge about the person, his organs and systems, by adhering to the relevant ethical and legal standards. Perform differential diagnosis of diseases by making an informed decision, according to a certain algorithm, using the most probable or syndrome diagnosis, data from laboratory and instrumental examination of the patient, knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms. Establish a preliminary clinical diagnosis by making an informed decision and logical analysis, using the most probable or syndromic diagnosis, data from laboratory and instrumental examination of the patient, conclusions of differential diagnosis, knowledge about the person, his organs, etc. system, adhering to the relevant ethical and legal standards.

PRN15.Determine the necessary mode of work and rest during treatment diseases, in the conditions of a health care institution, at home in the patient and at the stages of medical evacuation, including in the field, on the basis of a preliminary clinical diagnosis, using knowledge about human beings, their organs and systems, adhering to the relevant ethical and legal standards. legal norms, by making an informed decision on the following issues: existing algorithms and standard schemes.

PRN16.Determine the necessary therapeutic nutrition in the treatment of the disease, in the conditions of a health care institution, at the patient's home and at home. stages of medical evacuation, including in the field on the basis of preliminary clinical diagnosis, using the knowledge of the person, his bodies and systems, adhering to the relevant ethical and legal standards. norms, by making an informed decision on existing ones algorithms and standard schemes.

PRN17.Determine the nature of treatment (conservative, operative) of the disease in a health care facility, at the patient's home, and at the workplace. stages of medical evacuation, including in the field on the basis of preliminary clinical diagnosis, using the knowledge of the person, his bodies and systems, adhering to the relevant ethical and legal standards. norms, by making an informed decision on existing ones algorithms and standard schemes. Determine the principles of treatment of the disease in the conditions of health care facilities, at the patient's home and at the stages of medical treatment evacuation procedures, including in the field, based on a preliminary clinical report. diagnosis, using knowledge about a person, his organs and systems, adhering to the relevant

ethical and legal standards, by making an informed decision based on existing algorithms and standard schemes.

PRN18. Establish a diagnosis by making a reasonable decision. decisions and assessments of a person's condition, under any circumstances (at home, on the street, health care institution, subdivision), including in an emergency situation, in the field, in conditions of lack of information and limited time, using standard methods of physical examination, etc. possible medical history, knowledge about the person, his organs and systems, by adhering to the relevant ethical and legal standards.

PRN22. Perform medical manipulations in a medical center. based on a preliminary clinical diagnosis and/or indicators of the patient's condition, using knowledge of the following factors: human beings, their organs and systems, adhering to the relevant ethical and legal standards. legal norms, by making an informed decision and using standard techniques.

PRN25. To form, in the conditions of a health care institution, its divisions in production, using a generalized procedure for assessing the state of health human health, knowledge about a person, his organs and systems, following appropriate ethical and legal standards, through the adoption of an informed decision, among the assigned population:

dispensary groups of patients; in the group of healthy people subject to dispensary observation (newborns, children, teenagers, pregnant women, representatives of professions, must pass a mandatory dispensary examination).

PRN28. Organize the implementation of secondary and tertiary prevention activities among the assigned population, using a generalized procedure for assessing the state of human health (screening, preventive medical examination, seeking medical help), knowledge about the person, his organs and systems, adhering to the relevant guidelines. ethical and legal standards, by making an informed decision, in the context of a health care facility, in particular: form groups of dispensary observation; organize health-improving activities in a differentiated manner medical examination groups.

PRN30. Conduct detection and early diagnosis of infectious diseases in the conditions of a healthcare institution or its subdivision; primary anti-epidemic measures in the focus of an infectious disease.

PRN32. In a healthcare facility or at the patient's home based on the obtained data on the patient's health status, using standard schemes, using knowledge about a person, his organs and systems, following the appropriate ethical and legal standards, through the adoption of an informed decision: determine the tactics of examination and secondary prevention of patients, to determine the tactics of examination and primary prevention of healthy individuals subject to dispensary observation; calculate and prescribe the necessary food products for children of the first year of life.

PRN33. Determine the presence and degree of life activity restrictions, type, degree and duration of incapacity for work with the execution of the relevant documents, in accordance with the Legislation of the Russian Federation. conditions of a health care institution based on data on the disease and its course, and the specifics of a person's professional activity.

PRN35. In the service area using standard descriptive methods, analytical epidemiological and medico-statistical studies: conduct screening to identify the most important non-communicable diseases; evaluate the dynamics of morbidity rates, including chronic ones, when

compared with static average data
 non-communicable diseases, disability, and mortality, integral health indicators; identify risk factors for the occurrence and course of diseases; form risk groups of the population.

PRN41.In the context of a health care facility or its subdivision using standard methods: conduct selection and use unified clinical protocols
 guidelines for the provision of medical care developed on the basis of evidence-based
 take part in the development of local protocols for providing medical
 care; conduct quality control of medical services based on:
 statistical data, expert evaluation, and sociological research data. research using indicators of
 structure, process, and performance; identify barriers to improving quality and safety medical
 assistance.

3. Academic discipline program

The educational process is organized according to the European Credit Transfer and Accumulation System (ECTS).

The program of the discipline "Traumatology and Orthopedics, orthopedics and rehabilitation " is structured into one block.

Structure of the academic discipline

	Total			
Topic names	hours	l.	pr.	i.s.w
1	2	3	4	5
Topic 1. Introduction to the specialty. Trauma, polytrauma, traumatic illness. Features of examination of traumatological and orthopedics patients.	9	1	4	4
Topic 2. Traumatic shock , prolonged compression syndrome.	9	1	4	4
Topic 3. Damage to the bones and joints of the upper limb.	9	1	4	4
Topic 4. Injuries to the spine, pelvis and lower extremity.	9	1	4	4
Topic 5. Congenital deformities and degenerative-dystrophic deformities of the spine, bones and joints. Scoliosis.	9	1	4	4
Topic 6. Inflammatory, tumoral and tumoroid diseases of the support and movement system.	9	1	4	4
Topic 7. Basic principles of osteosynthesis.	9	1	4	4
Topic 8. General concept of physical rehabilitation.	9	1	4	4
Topic 9. Adaptation reactions during muscle activity.	9	1	4	4

Topic 10. Features of physical rehabilitation methods for diseases and injuries of the musculoskeletal system.	9	1	4	4
TOGETHER	90	10	40	40

4. Content of the academic discipline

4.1. Lecture plan

No S. P.	TOPIC	Quantity hours
	Introduction to Traumatology and Orthopedics. History of development and modern achievements of Russian traumatology and orthopedics. Regeneration of bone tissue. Closed and open fractures. Providing medical care at the pre-hospital stage, treatment of dislocations on an outpatient basis and in a specialized hospital. Etiology and pathogenesis of clubfoot and muscular curvature. Klipel-Feil disease, Grizel's disease. Classification. Clinical manifestations in different age categories. Etiology and pathogenesis of hip dysplasia and congenital hip dislocation	2
	Traumatic illness. Polytrauma Clinic, diagnosis, treatment. Pelvic injuries. Clinic, diagnosis, and treatment. Traumatic shock, prolonged compression syndrome. Definition of the concept of traumatic shock, frequency and severity of shock in war and peacetime, current understanding of the etiology and pathogenesis, clinical manifestations of shock in various locations of wounds. Complex treatment of shock, modern methods of correction of hemodynamic, respiratory, metabolic and neuroendocrine disorders. Content of anti-shock measures in conditions of military operations and extreme situations. Early prevention of shock. Questions of military traumatology. Gunshot and closed injuries to limbs and joints.	2
	Spinal injuries. Clinic, diagnosis, and treatment. Open fractures, treatment features. Traumatic osteomyelitis. Classification of spinal injuries, their mechanogenesis, pathomorphology. The concept of "stable" and "unstable" spinal injuries. Clinical manifestations of complicated and uncomplicated injuries, depending on their localization. Providing medical care at the pre-hospital stage, with all kinds of spinal injuries. Treatment of spinal injuries at the hospital stage. Conservative and operative methods of treatment of complicated and uncomplicated spinal injuries, their indications and technique. Injuries to the bones of the shoulder girdle and joints of the upper limb. Injuries to the bones and joints of the lower limb.	2
	Osteochondrosis. Osteoarthritis. Clinic, diagnosis, and treatment. Rehabilitation for diseases and injuries of the musculoskeletal system. Pathogenesis of spinal osteochondrosis. Biomechanics and physiology of the mid-rib segment. Stages of osteochondrosis. Clinic, diagnosis of spinal osteochondrosis of various locations. Indications for conservative and operative methods of treatment. Etiology and pathogenesis of spondylosis and spondyloarthritis. Clinic, diagnostics. Principles of treatment of spondylosis and spondyloarthritis. Professional rehabilitation of patients with degenerative-dystrophic diseases of the spine. Etiology and pathogenesis of deforming osteoarthritis. Classification and clinic of osteoarthritis. Diagnostics. Inflammatory, tumoral and tumoroid diseases of the support and movement system. Clinic, diagnosis, and treatment. Scoliosis. Deformity of the neck and	2

	chest. Clinic, diagnosis, and treatment. Rheumatoid arthritis. General principles of conservative treatment. Basic principles of osteosynthesis.	
	General concept of physical rehabilitation. History of therapeutic use of physical exercises in the recovery of individuals after diseases. Objective methods and principles of their application. Types of rehabilitation periods and stages. Motor functions and human activity, their violations and correction in order to restore full-fledged life activity according to the desires and needs of a person in the environment. Implementation of complex specialized tasks and practical problems associated with organ dysfunctional systems, in particular, the musculoskeletal system. Physical exercises, their place at certain stages of rehabilitation treatment. Adaptation reactions during muscle activity. Muscles, their functions, varieties and structure. Reconstruction of muscles under the influence of various physical loads (static and dynamic, moderate and marginal). Structural and functional features of motor units of muscles. Changes in muscle fibers under the influence of physical exertion. Adaptive changes in the bone system. Adaptive changes in connective tissue.	2
TOGETHER		10

4.2. Practical training plan

№ S. P.	TOPIC	Quantity hours
1.	<p>Tema1. Introduction to the specialty. Trauma, polytrauma, traumatic illness. Features of examination of traumatological and orthopedic patients.</p> <p>Definition of traumatology and orthopedics as a discipline. History of development and modern achievements of Russian traumatology and orthopedics. Features of anamnesis collection in patients with ODE pathology. Ways determining the axis of the limbs and spine. The main types of deformities of the limbs and spine. Measuring the length and volume of limbs. Types of limb contractions and methods of their determination. Methods for determining the volume of movement in the joints. Types of contractures.</p> <p>Absolute and relative clinical signs of fractures and dislocations. Radiological signs of fractures, dislocations, and orthopedic diseases. The use of NMR-tomography, CD and densitometry in the diagnosis of lesions of the support and movement system.</p> <p>Etiology and pathogenesis of clubfoot and muscular curvature. Klipel-Feil disease, Grizel's disease. Classification. Clinical manifestations in different age categories. Etiology and pathogenesis of hip dysplasia and congenital hip dislocation. Methods of conservative treatment of dysplasia and congenital dislocation depending on the age of the child. The Trendelenburg symptom.</p> <p>Surgical treatment of congenital hip dislocation.</p>	4
2.	<p>Topic 2. Traumatic shock, prolonged compression syndrome.</p> <p>Definition of the concept of traumatic shock, frequency and severity of shock in war and peacetime, current understanding of the etiology and pathogenesis, clinical</p>	

	<p>manifestations of shock in various locations of wounds. Complex treatment of shock, modern methods of correction of hemodynamic, respiratory, metabolic and neuroendocrine disorders. Content of anti-shock measures in conditions of military operations and extreme situations. Early prevention of shock. Prolonged compression syndrome, etiology, pathogenesis. Classification. Phases of development. Clinic. Dependence of clinical manifestations on the mass of tissue damage, the strength and duration of the impact of the crushing factor on them. Modern methods of treatment in conditions of military operations and natural disasters. Features of treatment of open and closed soft tissue injuries with and without bone fractures, dislocations, and orthopedic diseases. The use of NMR-computed tomography, CD and densitometry in the diagnosis of lesions of the support and movement system. Defining concepts: dislocation, subluxation. Pathomorphology of dislocation, general classification of dislocations. Mechanogenesis (shoulder, forearm, hip) their classification and clinic. Providing medical care at the pre-hospital stage, treatment of dislocations in a specialized hospital. Complications of dislocations, their prevention and treatment.</p>	4
3.	<p>Topic 3. Injuries to the bones of the shoulder girdle and joints of the upper limb.</p> <p>Damage to the shoulder blade. Classification, diagnosis, and treatment. Dislocations and fractures of the clavicle. Diagnostics, conservative and operative treatment. Mechanogenesis of fractures of the proximal humerus. Classification, diagnosis, and treatment. Fractures of the humerus diaphysis. Classification, diagnosis, and treatment. Fractures of the distal end of the humerus, mechanogenesis of trauma. Classification, diagnosis, and treatment. Fractures of the ulnar process. Mechanogenesis injuries. Classification, diagnosis, and treatment. Fractures of the head of the radius. Mechanogenesis of trauma. Classification, diagnosis, and treatment. Fractures of the diaphysis of the forearm bones. Classification and mechanism of damage. Features of displacement of fragments. Clinic. Diagnostics. Indications for conservative, operative methods of treatment. Fractures of the distal end of the radius and their types. Mechanogenesis of damage. Clinic. Diagnosis and treatment. Fractures of the hand bones. Fractures of the wrist and metacarpal bones of the hand. Typical mechanisms of injury. Clinic. Diagnostics. Treatment. Finger tendon injuries. Diagnostics. Clinic. Treatment.</p>	4
4.	<p>Topic 4. Injuries to the spine, pelvis, and lower extremity.</p> <p>Classification of spinal injuries, their mechanogenesis, pathomorphology. The concept of "stable" and "unstable" spinal injuries. Clinical manifestations of complicated and uncomplicated injuries, depending on their localization. Providing medical care at the pre-hospital stage, with all kinds of spinal injuries. Treatment of spinal injuries at the hospital stage. Conservative and operative methods of treatment of complicated and uncomplicated spinal injuries, their indications and techniques run times. Social and professional rehabilitation of patients with spinal injuries. Classification of pelvic injuries and mechanogenesis of various variants of their formation. Clinical picture of various pelvic injuries. Clinical features of pelvic injuries. And their diagnostics. Principles of providing medical care at the pre-hospital stage. Conservative and operative methods of treatment of patients with various types of pelvic injuries. Classification of femoral proximal metaepiphysis fractures. Damage mechanism. Clinic, diagnostics. Providing medical care at the pre-hospital stage.</p>	

		4
	<p>Topic 5. Congenital deformities and degenerative-dystrophic deformities of the spine, bones and joints. Scoliosis.</p> <p>Pathogenesis of spinal osteochondrosis. Biomechanics and physiology of the mid-rib segment. Stages of osteochondrosis. Clinic, diagnosis of spinal osteochondrosis of various locations. Indications for conservative and operative methods of treatment. Etiology and pathogenesis of spondylosis and spondyloarthrosis. Clinic, diagnostics. Principles of treatment of spondylosis and spondyloarthrosis. Professional rehabilitation of patients with degenerative-dystrophic diseases of the spine. Etiology and pathogenesis of deforming osteoarthritis. Classification and clinic of osteoarthritis. Diagnostics. Principles of treatment of deforming osteoarthritis depending on the stage of the disease. Indications for conservative and operative treatment of hip, knee, shin and foot arthrosis. Congenital muscular torticollis, Klippel-Feil disease, Grizel's disease. Congenital high standing of the scapula, krilopodibna scapula. Etiology. Clinic. Principles of diagnosis and treatment. Funnel-shaped and keel-shaped thorax.</p>	4
	<p>Topic 6. Inflammatory, tumoral and tumoroid diseases of the support and movement system.</p> <p>Rheumatoid arthritis. Etiology, pathogenesis, clinic. Principles of complex treatment: medical, orthopedic. The choice of orthopedic methods depends on the stage of the disease. Syphilitic lesion of bones and joints. Classification: congenital and acquired (early, late). Clinical and radiological symptoms depending on its form. Treatment. General issues of pathogenesis and clinic of osteoarticular tuberculosis, its forms. Tuberculosis spondylitis, flow phases. Clinical and radiological diagnostics. General principles of conservative treatment. Indications for surgical treatment and types of surgical interventions. Classification of tumors. Primary benign tumors of cartilage and bone origin: chondroma, osteoblastoclastoma, osteoma, osteoidosteoma. Clinical and radiological signs of tumors. Methods of treatment. Primary malignant tumors of cartilage and bone origin: chondrosarcoma, periosteal fibrosarcoma, osteogenic sarcoma, Ewing's sarcoma. Clinical and radiological methods for the diagnosis of malignant tumors, their treatment. Secondary malignancies: metastatic and growing into the bone from surrounding soft tissues (synovioma). Clinic, treatment. Tumor-like bone diseases: solitary bone cyst, aneurysmal bone cyst, osteoid osteoma. Clinical and radiological signs. Treatment.</p>	

		4
	<p>Topic 7. Basic principles of osteosynthesis.</p> <p>One of the current trends in the world of traumatology and orthopedics is the development and widespread introduction of modern methods of osteosynthesis into the practice of an orthopedic traumatologist, aimed at reducing the time of fusion of fractures, patient stay in the hospital, ensuring early function of the damaged limb, reducing the level of disability and rapid social adaptation of the victim.</p> <p>Osteosynthesis (Greek: osteon (bone) + synthesis (compound)). Therefore, surgical joining of bone fragments in the correct position in order to fix them stably until they are completely consolidated (bone fusion) and achieve restoration of bone integrity and function. Osteosynthesis is used in the treatment of fresh, unbroken, incorrectly fused fractures and false joints, bone connection after osteotomy.</p>	4
	<p>Topic 8. General concept of physical rehabilitation.</p> <p>8. History of therapeutic use of physical exercises in the recovery of individuals after diseases. Objective methods and principles of their application. Types of rehabilitation periods and stages. Physical exercises, their place at certain stages of rehabilitation treatment.</p>	4
	<p>Topic 9. Adaptation reactions during muscle activity.</p> <p>9. Muscles, their functions, varieties and structure. Reconstruction of muscles under the influence of various physical loads (static and dynamic, moderate and marginal). Structural and functional features of motor units of muscles. Characteristics of different types of muscle fibers. Changes in muscle fibers under the influence of physical exertion: hypertrophy (sarcolemmal and myofibrillary) and atrophy. Intramuscular and intermuscular coordination. Adaptive changes in the bone system during rehabilitation. Adaptive changes in connective tissue.</p>	4
	<p>Topic 10. Features of physical rehabilitation methods for diseases and injuries of the musculoskeletal system.</p> <p>10. The main manifestations of diseases and injuries of the musculoskeletal system. Complications of diseases: contractures, paralysis, paresis, hyperkinesia, impaired sensitivity, trophic function. Mechanisms of therapeutic effect of physical exercises and other means of physical rehabilitation. Tasks and methods of treating complications and their prevention.</p>	4
TOGETHER		40

4.3. Tasks for independent work

For independent work of students, tasks of a theoretical nature are submitted, which are not sufficiently thoroughly considered in the framework of lectures and practical classes. The student must work through the literature sources and be ready to answer the questions posed during practical classes and the test. Practical tasks include tests and tasks.

№ S. P.	TOPIC	Number of hours
1.	Development of rheumatology and orthopedics in Ukraine and the world.	4
2.	Multiple and combined injuries of the organs of movement and support traumatic shock, diagnosis, treatment principles.	4
3.	Osteochondropathies (Leg-Calve-Perthes disease; Osgood-Schlater; Koehler I, II; Shoermann-Mau; Calve; Kinbek, etc.).	4
4.	Soft tissue injuries (bruises, hemorrhages, ligament injuries).	4
5.	Dupuytren, Ledderhoz, Peyronie's disease.	4
6.	Arthropathies (diabetic, psoriatic, etc.) Epicondylitis, degenerative-dystrophic diseases of soft tissues, punitive canal syndrome, etc.	4
7.	Tumors of the organs of movement and support. Fibrotic osteodystrophy (Paget's disease, Recklinghausen's disease, etc.).	4
8.	Features of physical rehabilitation methods for diseases and injuries of the musculoskeletal system.	4
9.	Compilation of sets of physical exercises for various diseases and injuries of the musculoskeletal system.	4
10.	Mechanisms of therapeutic effect of physical exercises and other means of physical rehabilitation for various diseases and injuries of the musculoskeletal system.	4
TOGETHER		40

Individual tasks

Selection and review of scientific literature on the subject of the program of the student's choice with the writing of the abstract and its public defense.

Selection and review of scientific literature on the subject of research work of the department with the preparation of a scientific report at a meeting of the SSS or at student conferences.

Scientific research on the subject of research work of the department with the publication of the results in scientific publications.

Participation in the student scientific circle and presentations at scientific forums.

Participation in the student Olympiad in the discipline.

Patient supervision, work in the operating room, plaster cast emergency room, emergency room duty.

Typical tasks for checks of the mastered material in practical classes (examples)

1. An 8-year-old boy was admitted to the clinic. A super viral extensor fracture of the right humerus was diagnosed. Under local anesthesia, the fragments were repositioned, immobilized with a long-circular plaster cast to the upper third of the right shoulder. After 3 hours, the finger of the right hand turned white, sensitivity and active movements disappeared. What is your diagnosis of the complication that occurred, and its mechanism? Methods of prevention and tactics of treatment and rehabilitation.

2. A 35-year-old patient was admitted to the clinic with a fracture of the ulnar process with a slight displacement of the fragments. The patient has a back plaster splint applied at an angle of flexion in the elbow joint up to 80 degrees. The patient is referred for outpatient treatment. Recommendations: do not remove the plaster cast for several weeks, then report for an appointment at the clinic.

1. Correct treatment tactics and method of immobilization?
2. Are the recommendations correct?
3. Your treatment strategy.
4. Methods of rehabilitation.

3. 4 weeks ago, the patient went to the emergency room for a posterior dislocation of the right forearm. The dislocation was corrected, and a rear plaster splint was applied. Radiography was not performed. In the clinic, after 3 weeks, the plaster cast was removed and therapeutic gymnastics was prescribed. However, despite vigorous rehabilitation, movements in the elbow joint did not resume.

1. What is the mistake of the doctor who provided assistance and the doctor of the polyclinic?

2. What injuries should be differentiated from posterior dislocations of the forearm?

4. A 5-year-old child was taken to the emergency room after falling down the stairs on her right arm. A medial epicondyle fracture with dislocated fragments was diagnosed. A back plaster splint was applied in the forearm extension position, after which the child was sent for outpatient treatment.

Correct tactics for providing care and further treatment? If not, why not?

5. A 32-year-old patient was treated for a week with skeletal traction for an oblique fracture of the humerus diaphysis in the distal third. However, it was not possible to eliminate the displacement of fragments along the width. On day 10, an open reposition of fragments was performed, followed by osteosynthesis with a metal plate. The next day after the operation, the examination revealed that the patient could not actively straighten the fingers and hand, as well as remove 1 finger.

1. Is the operation legitimate?

2. Why can't the patient actively straighten the fingers, brush and pull the finger away?
3. Tactics of further treatment.
4. Terms of early rehabilitation.

6. A 28-year-old patient fell on his left arm and felt pain in the elbow joint, which increased with movement. On examination: the contours of the left elbow joint are smoothed, movements are limited, the patient fixes the forearm with his healthy hand in the middle position between supination and pronation. Supination and pronation are impossible because of the pain that is localized in the area of the projection of the head of the radius. Radiographs show a fracture of the head of the left radius in two projections.'

1. Justify your treatment plan.
2. Methods and terms of immobilization.
3. Terms and stages of physical rehabilitation.

4.4. Ensuring the educational process

1. Multimedia projectors, computers, screens for multimedia presentations, lecture presentations.
2. Diagrams, tables, tests, and videos.
3. Technical training tools: a training manipulative class.
4. Differential credit tickets.

5. Final control

List of questions of final control (differential test)

1. Cognitive points and lines that are determined during the examination of an orthopedic and traumatological patient.
2. Types of joint movement restrictions.
3. The course of the processes of reparative regeneration of bone tissue in a fracture.
4. The main principles of treatment of bone fractures.
5. Indications and principles of applying the fixative method of fracture treatment.
6. Indications and principles of using the extension method of fracture treatment.
7. Indications and principles of surgical treatment of fractures.
8. Indications and principles of applying the compression-destruction method.
9. Give a definition of the concept of "dislocation" and its classification depending on time.
10. Classification of rib fractures and the mechanism of their formation.

11. Broken collarbone. Mechanism of formation, classification, clinic and diagnosis.
13. Classification of fractures of the shoulder and forearm bones, the mechanism of its occurrence and treatment.
14. Features of fragment displacement in a diaphyseal fracture.
15. Classification of spinal injuries.
16. Clinic, diagnosis and treatment of complicated dislocation and fracture-dislocation of vertebrae.
17. Clinic, diagnosis and treatment of uncomplicated vertebral compression fracture.
18. Mechanism and classification of pelvic fracture.
19. Features of shock and internal tissue bleeding in pelvic fracture and their treatment.
20. Treatment of femoral neck and trochanteric fractures.
21. Mechanogenesis of knee ligament damage. Clinic, diagnosis and treatment.
22. Indications for conservative and operative treatment of patellar fracture.
23. Mechanism and classification of ligament injuries, fractures of the shin-foot joint.
24. Fracture of the suprahyaloid, calcaneal, metatarsal bones and phalanges of the fingers. Mechanism of damage, clinic, diagnosis and treatment.
25. Pathogenesis of spinal osteochondrosis and its stages.
26. Clinic and diagnosis of osteochondrosis of the cervical, thoracic and lumbar spine.
27. Indications for conservative and operative treatment of spinal osteochondrosis, its main methods.
28. Etiology and pathogenesis of deforming atrosis and its classification.
29. Tuberculosis of bones and joints. Clinic, diagnosis and treatment.
30. Etiology of spastic paralysis and its main clinical signs.
31. Flaccid paralysis. Etiology, clinical signs. Conservative and operative treatment.
32. Etiology, pathogenesis, clinical signs of congenital muscular crooked neck. Conservative and operative treatment.
33. Definition of the term "scoliosis" and classification of scoliosis by etiology.
34. Malformations of posture and their clinical signs. Etiology and principles of treatment.
35. Clinical signs of congenital clubfoot and its classification.
36. The role of prosthetics in the system of rehabilitation of orthopedic and traumatological patients.
37. The main indications for emergency elective amputation of limbs.
38. Methods and methods of limb amputation.
39. Types of prosthetic limbs and their characteristics.
40. Orthopedic devices, their purpose and indications for use.
41. Definition of the concept of traumatic shock. Frequency and severity of shock in war and peacetime.
42. Clinical manifestations of shock in various locations of wounds. Comprehensive treatment of shock.
43. Prolonged crushing syndrome, etiology, pathogenesis. Classification. Phases of development. Clinic.
44. Features of treatment of open and closed large soft tissue injuries with and without bone fractures.
45. Describe the main terms and concepts of rehabilitation medicine.
46. Legislative acts concerning rehabilitation of the sick and disabled in Ukraine.
47. Issues of rehabilitation in traumatology and orthopedics.
48. Temporary disability and its significance for the rehabilitation of the sick and disabled.

49. The concept of medical and social rehabilitation.
50. Organization and management of the medical rehabilitation system.
51. Causes of disability.
52. The concept of an individual rehabilitation program.
53. Basic principles of drawing up an individual rehabilitation program.
54. Formation and implementation of an individual rehabilitation program.
55. Basic principles of medical rehabilitation.
56. Basic principles of professional and social rehabilitation.
57. It is clear about psychological rehabilitation.
58. Structure of an individual rehabilitation program.
59. Physical exercises, their place at certain stages
60. Characteristics of physical exercises in the recovery of individuals after injuries.
61. Methods and principles of application of physical exercises in the postoperative period.
62. Types of rehabilitation periods and stages.

"0" ticket option dif. offset

Petro Mohyla Black Sea National University

Higher education level-Master's degree

Branch of knowledge: 22 Healthcare

Specialty 222 Medicine

Academic discipline – **Traumatology, orthopedics and rehabilitation**

Option # 0

1. Course of bone tissue reparative regeneration processes in fractures - **the maximum number of points is 20.**
2. Pathogenesis of spinal osteochondrosis and its stages - **the maximum number of points is 20.**
3. Rehabilitation issues in traumatology and orthopedics - **the maximum number of points is 20.**
4. Basic principles of medical rehabilitation - **the maximum number of points is 20.**

Head of the Department prof. Tarasenko O.M.

Examiner

And there are 15 such tickets

Example of a KKR task

Option # 0

I. Question

- a.** Mechanism and classification of ligament injuries, fractures of the shin-foot joint. Physical rehabilitation plan.
- b.** Types of joint movement restrictions. Ways to restore them.

II. Tasks:

1. You have taken measurements of the patient's lower extremities. Anatomical length: the measurement segment of both thighs and shins is the same; when measuring the relative length, a difference of 5 cm was found in the lower right limb. What are the reasons for this difference?
2. A 14-year-old patient has a congenital dislocation of the hip, a diving gait. What cognitive lines and measurements will give us grounds to clinically establish the diagnosis of hip dislocation?
3. When measuring the amount of movement in the knee joint, you received data: flexion up to 90 degrees, extension up to 160 degrees. What is the name of such an installation, its varieties, and the causes of pathological installations in the joints?
4. When examining the patient, the angle between the axis of the thigh and the lower leg is open outwards. What is the name of such a deformity in the knee joint (Latin name)? How and how to determine it?
5. When examining the patient, the angle between the hip axis and the lower leg is open inwards. What is the name of such a strain (Latin name) and how to measure it?
6. The patient does not walk, there are no movements in the knee joints, the pathological settings in them are at an angle of 145 degrees. What are the names of such pathological attitudes? The reasons for their occurrence?

7. When examining the patient (under load), the foot is flat and tilted with the heel outwards. What is the name of the deformity (Latin name)?
8. The patient has retained hook and pinch grip sets due to the disease. What types of hand binding are missing?
9. A patient has developed a deformity with an open forward angle due to an incorrectly growing fracture of the lower leg bones. What is the name and definition of a strain?
10. A patient has developed a deformity with an angle open backwards due to an incorrectly growing fracture of the lower leg bones. How is the strain defined and called?

And so 15 options

6. Evaluation criteria and diagnostic tools for learning outcomes

Control methods

- Survey (testing of theoretical knowledge and practical skills).
- Test control.
- Writing a review of scientific literature (abstracts).
- Preparing presentations.

Current control. Testing in practical classes of theoretical knowledge and development of practical skills, as well as the results of independent work of students. They are supervised by teachers according to the specific purpose of the curriculum. Assessment of the level of students' training is carried out by interviewing students, solving and analyzing situational problems and test tasks, and monitoring the assimilation of practical skills.

Intermediate control. Checking the possibility of using students' theoretical knowledge and practical skills on all the topics studied, as well as the results of independent work of students for practical application. Performed at the last lesson by section by passing practical skills, testing.

Final control. To the final control (dif. credit) students who have attended all the lectures and classroom classes provided for in the curriculum, who have completed their independent work in full, and who have scored no less than the minimum number of points in the course of training are allowed – **70 points per semester.**

Distribution of points awarded to students

A student can get as much as possible **120 points** for current academic activities. Accordingly, on positive assessment at each practical lesson can be **from 3.5 to 6 points**. Score below **3.5 points** means "unsatisfactory", classes are not counted and are subject to testing in accordance with the established procedure.

In order to evaluate the results of training, a final control is carried out in the form of a dif. test. The student can get the most on the dif. test **80 points**. Dif. credit is considered completed if the student has received at least **50 points**.

Assessment of student performance

Type of activity (task)	Maximum number of points
practical lesson 1	6
practical lesson 2	6
practical lesson 3	6
practical lesson 4	6
practical lesson 5	6
practical lesson 6	6
practical lesson 7	6
practical lesson 8	6
practical lesson 9	6
practical lesson 10	6
practical lesson 11	6
practical lesson 12	6
practical lesson 13	6
practical lesson 14	6
practical lesson 15	6
practical lesson 16	6
practical lesson 17	6
practical lesson 18	6
practical lesson 19	6
practical lesson 20	6
Together	120
Diff. credit	80
Together with the dif. test	200

Criteria for evaluating knowledge

With a score of **6 points in the practical lesson and 71-80 points in the test (A on the ECTS scale and 5 on the national scale)** the student's answer is evaluated if it demonstrates a deep knowledge of traumatology, orthopedics and rehabilitation, the ability to apply theoretical material for practical analysis, and does not have any inaccuracies.

With a score of 5 points in the practice session and 61-70 points in the test (B and C on the ECTS scale and 4 on the national scale) the answer is evaluated if it shows knowledge and the ability to apply it practically, but some fundamental inaccuracies are allowed.

With a score of 3.5-4 points in the practical lesson and 50-60 points in the test (D and E on the ECTS scale and 3 on the national scale) the student's answer is evaluated on the condition that he knows the basic theoretical provisions and can use them in practice.

7. Recommended sources of information

7.1. Main features

1. Bitchuk D. D., Istomin A. G., Khimenko M. F., Maryukhnich A. A. Traumatology and orthopedics. Collection of test tasks for post-auditory training of students before licensing exams Step-2. Kharkiv: KHSMU, NTU "KhPI", 2004. - 224 p.
2. Bukup Claus. Clinical examination of muscles and joints / Bukup Klaus, Moscow, 2007, 320 p.
3. Buryanov A. A., Sklyarenko Is.T., Voloshin A. I., Zadnichenko M. A., Kvasha V. P., Grek V. P. Traumatology and orthopedics. Manual for practical exercises. Kiev: Kniga-plus Publ., 2006, 136 p. (in Russian)
4. Maikova T. V. Osnovnye sovremennosti i tendentsii razvitiya rehabilitologii [Main trends and trends in the development of rehabilitation medicine]. manual for university students. study. Maikova T. V., Samoshkina A.V. [In Russian]. Dnepropetrovsk, 2014, 95 p. (in Russian)
5. Marchenko A. Kol. Osnovy fizicheskoi reabilitatsii: Uchebnoe posobie [Fundamentals of physical rehabilitation: A textbook].
6. Medical rehabilitation in Sports: A Guide for doctors and students / Under the general editorship of V. N. Sokrut, V. N. Kazakov. Donetsk: "Kashtan" Publ., 2011, 620 p., 36 figs.
7. Methodological guidelines for writing an educational medical history when curating patients with injuries and diseases of the ODE / M. Sec. Klepach, N. I. Pustovoit, V. P. Omelchuk and others . - Methodological guidelines: Ivano-Frankivsk, 2002. - 40 p .
8. Guidelines for writing a medical history when curating patients with injuries and diseases of the support and movement system. - Zaporozhye. - 2010. - 15 p.
9. Okomato Gary. Fundamentals of physical rehabilitation / Transl. с англ. – Львів: Галицька видавнича спілка. – 2002. – 294 с.
10. Mukhin V. M. Fizicheskaya reabilitatsiya [Physical rehabilitation], Moscow: Olimpiyskaya literatura Publ., 2005, 471 p.
11. Alexey A. P. Orthopedics. - Ternopil: TSMU, "Ukrmedkniga", 2006.
12. Orthopedics and traumatology / ed. by prof. A.M. Khvisyuk . - Kh., 2013. - 656 p.
13. Osnovy reabilitatsii, fizioterapii, lechebnoy fizicheskoy kul'tury i massey: Uchebnik [Fundamentals of rehabilitation, physiotherapy, therapeutic physical culture and massage]. Polyanskaya street. - Chernovtsy: Prut. - 2006. - 208 p.

14. Practicum on the course of traumatology and orthopedics (for students of higher medical institutions). - T.: "Ukrmedkniga", 2004.
15. Sklyarenko Is There. T. Traumatology and orthopedics. - K.: Health, 2005. - 328 p.
16. Traumatology and orthopedics : textbook for students of higher medical educational institutions / ed . Igli G. G., Buryanova O. A., Klimovitskogo V. G.-Vinnytsya: A New Book(In Ukrainian), 2014. - 416 p.
17. Traumatology and orthopedics: A textbook for students. higher level. study. zavodenny / edited by G. M. Kavalersky. - 2nd ed., reprint. Moscow: Publishing Center "Akademiya", 2008, 624 p. (in Russian)
18. Trubnikov V. F. Traumatology and orthopedics, Moscow: Vysshaya shkola Publ., 1986, 591 p.
19. Chemiris A. I., Neryanov Yu. M., Kudievsky A.V., Shishka I. V. Practical skills and abilities in traumatology and orthopedics. Educational and visual aid for students of VMUZ. - Zaporozhye. - 2010. - 64 p.

7.2. Additional Features

1. Babosha V. A., Klimovitsky V. G., Pasternak V. N. et al. Pelvic trauma (Clinic, diagnosis, and treatment). Donetsk: Donechchina Publ., 2000, 176 p. (in Russian)
2. Shumada Y. V., Suslova A. Ya., Stetsula V. Y., Moroz N. F., Krysyuk A. P. Diagnostics and treatment of degenerative-dystrophic joint lesions. Kiev: Zdorovya Publ., 1990, 200 p. (in Russian)
3. Korzh N. A., Dedukh N. V., Zupanets I. A. (ed.). Osteoarthritis. Conservative therapy. Kharkiv: Prapor Publ., 1999, 33 p. (in Russian)
4. Kornilov N. V., Gryaznukhin N. G. Traumatology and orthopedics (guide for doctors in 4 volumes), 2004-2007.
5. Alexey A. P. Traumatology and orthopedics, Moscow: Vysshaya shkola Publ., 1999, 511 p.
6. Organization of emergency medical care in military units (institutions) The Armed Forces of Ukraine: methodological recommendations / [2nd ed., reprint. and add-ons.] // [Authors...]. - GVMKTS "GVKG". - K., 2014. - 144 p.
7. Osteoporosis: epidemiology, clinic, diagnosis, prevention and treatment / Ed.by N. A. Korzh, V. V. Povoroznyuk, N. V. Dedukha, Y. A. Zupants. - Kh.: Zolotye paginy, 2002. – 648 p.
8. Fishchenko V. Ya. Scoliosis. Makeyevka: Polipress Publ., 2005, 568 p.

Informational content-electronic devices resources

Vernadsky National Library – www.nbuv.gov.ua.

State Emergency Service of Ukraine – www.dsns.gov.ua.

Ministry of Health of Ukraine – <http://www.moz.gov.ua>.

<https://www.cebp.nl/?NODE=239>

www.pubmed.gov

www.amjphysmedrehab.com

www.apta.org

www.sciencedirect.com

www.acsm-msse.org

www.pmrjournal.org

www.imtt.com.ua